A site map can be viewed by clicking on the report site name.

EcoSummary

Little Orange Creek at CR 21 near Orange Springs

August 15, 2000

ECOREG REF STREAMS

EXCELLENT

Stream Condition Index (SCI): The standardized biological assessment tool used by FDEP biologist to indicate ecosystem health and identify impairment as compared to reference (natural) conditions of streams within the various ecoregions of Florida

For samples collected before June 8, 2004
All field and laboratory methods followed FDEP Standard Operating Procedures and met FDEP quality assurance/quality control standards.
For samples collected on or after June 8, 2004
All field and laboratory methods followed FDEP Standard Operating Procedures (SOPs) and met DEP quality assurance/quality control standards.

Purpose



Little Orange Creek is one of the streams used by Central District biologists as a "best attainable condition" reference site for comparison with other streams in this portion of the state. The results of this bioassessment will be used to monitor the health of Little Orange Creek, and will also be a part of the continuing refinement of FDEP's Stream Condition Index (SCI) bioassessment methodology.

Watershed Characteristics

One of the tributaries of Orange Creek (itself a tributary of the Ocklawaha River), Little Orange Creek begins near Beckhamtown in Alachua County as a series of interconnected marshes, eventually flowing into and out of Little Orange Lake near Hawthorne, then through Redwater Lake. Downstream of Redwater Lake, it flows generally south and east to join Orange Creek at the town of Orange Springs approximately a mile upstream of its confluence with the Ocklawaha. It is at least a second order stream. A tributary, Cabbage Creek, flows into Little Orange Creek a short distance north of Orange Springs.

These water bodies are given the name Orange not after the citrus fruit, but because their

water is deeply stained with tannic acid, giving them the dark tea-colored hue shown in the photograph. When viewed over a white sand bottom, the stream does indeed have a dark orange color.

Despite the heavy tree canopy which shades Little Orange Creek, a number of aquatic plants grow in profusion at this site, including *Saururus cernuus*, *Eleocharis baldwinii*, *Orontium aquaticum*, and *Sparganium americanum*.

Land use in the 38 square mile watershed is approximately 72% natural. Agriculture and rangeland account for some 19%, with most of the remainder being low-density residential development.

Results

As has been seen in previous bioassessments, Little Orange Creek received an excellent rating on the SCI. There were 35 macroinvertebrate taxa found in the subsample. Of these, nine were members of the sensitive EPT group (larval mayflies, stoneflies, and caddisflies). This number included seven caddisflies and two mayflies. A substantial 24 points was scored on the Florida Index, which is based on the number of pollution-intolerant species found at a given site. The most abundant macroinvertebrate found at Little Orange Creek was the riffle beetle *Microcylloepus pusillus*, followed by the closely-related *Stenelmis* sp. The macroinvertebrate community was diverse, scoring 4.08 on the Shannon-Weiner diversity index.

Water chemistry and physical-chemical measurements were all good. The pH was quite low (4.5 su), but this is normal for such darkly tannin-stained waters. All nutrient levels were low, as was turbidity. The coliform bacteria values, however, were somewhat elevated, though neither fecal nor total coliforms was present at levels that constituted a violation of state standards.

Because of its largely unaltered local watershed, good flow, and plentiful habitat, Little Orange Creek at SR 21 scored very well on the habitat assessment, with 142 out of a possible 160 points, or 89%.

Significance

These results suggest that the health of Little Orange Creek remains very good. Biodiversity is high within this watershed due to relatively minimal human disturbance. Additional development in the watershed, however, could negatively affect the health of this stream, and the larger Ocklawaha River basin, of which it is a part.

Suggestions

To help preserve the ecological health and vitality of this system, additional agricultural, residential, or other development in the watershed - especially in close proximity to the stream - should be discouraged. Those who own property near the stream should maintain adequate riparian buffer zones between upland developments and the creek. Septic and sewer

systems on properties adjacent to the stream should be maintained to prevent the introduction of bacterial and other contaminants into Little Orange Creek.

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